

DETAILED ACTION

1. This office action is in reply to an amendment filed on June 24, 2009. Claims 21, 23-28 and 30-43 are pending of which claims 21 and 43 are independent. Claims 1-20, 22 and 29 were previously canceled.

On March 18, 2009, Applicant's representative Martin R. Geissler, Reg. No. 51011 and Examiner conducted telephonic interview. During the interview, Applicant's representative noted to the Examiner that the cited art failed to teach or suggest claimed features of the present invention. Applicant's representative argued that that claim 30 was not taught by the cited art. In addition, Applicant's representative argued that the cited art completely fails to teach or suggest the feature "wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light- spectroscopic analysis. Examiner suggested a possible amendment that could be made to overcome the ground of rejection however no agreement was reached as to how the independent claims should be amended to overcome the ground of rejection. Interview Summary has been attached.

Response to Arguments

2. Applicant's remark/arguments filed on June 24, 2009 have been fully considered but they are not persuasive.

Applicant's argument is based on the effective filing date of one of the reference/s used as the prior art.

In particular Applicant's representative argued that one of the reference in particular Einighammer et al could not qualify to be a 102/103 reference because it's effective filing date is after the effective filing date of the application which is May 14, 2003.

Applicant's representative wrote the following in support of his argument.

"First, Applicants respectfully submit that the reference Identified by the Examiner as being US 2006/005661 (Einighammer) cannot be considered prior art under any section of 35 U.S.C. 102. US Publication 2006/005661 (U.S. Application No. 101480,907) is a 371 National Stage of PCT application No. PCT/DE01/01861, which was first published in German and was published in English on March 16, 2006. Furthermore, U.S. Application 10/480,907 has a 371 date of July 25, 2005, which is after Applicant's priority date of May 14, 2003.

35. U.S.C. 102(e) clearly recites in part

A person shall be entitled to a patent unless -

(e) the invention was described in - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in English language. (Emphasis added)

Thus, it is clearly evident that the US Publication No. 20061005661 cannot be considered prior art, and Applicants respectfully request that the Examiner cite the proper reference document in order to clarify the record. Therefore, because U.S. Publication No. 2006/005661 cannot be considered prior art, and by virtue of the Examiner's combination, it is clear that Merbach et al. alone fails to teach or suggest all of the features of the independent claims."

Examiner disagrees with the above argument.

First of all examiner would like to point out that the US Publication 2006/0056661 claims the benefit of the corresponding international application PCT WO 02/101668 A2 which is attached for the reference. Under "MPEP 2136.03 Critical Reference Date [R-6] - 2100 Patentability, part II", it has been stated that if the potential reference resulted from, or claimed the benefit of, an international application, the following must be determined:

(A) If the international application meets the following three conditions:

- (1) an international filing date on or after November 29, 2000;
- (2) designated the United States; and
- (3) published under PCT Article **21**(2) in English, then the international filing date is a U.S. filing date for prior art purposes under **35 U.S.C. 102**(c).

A close review of the reference revealed that the international application WO 02/0101668 is filed after November 29, 2000 and designate the united states. However it is not published in English. Therefore even though its abstract is published in English **the international filing date is not considered to be the U.S. filing date for prior art purposes under 35 U.S.C. 102(e).** Thus **applicant's representative argument on this matter is found to be correct.**

However the reference WO 02/101668 A2 is published on December 19, 2002 which is before Applicant's priority date of May 14, 2003 and its abstract is also published in English. Furthermore when the office first used this reference (2006/0056661), USPTO translation office, has reviewed and confirmed that there is no distinction what so ever between the international application, WO 02/101668 and its corresponding US Publication 2006/00566661, therefore even though it is not qualified as a 102 (e) reference, it is qualified as 102 (a) reference. If Applicant's representative believes otherwise or found that there are distinctions between the two references the office would require a translation of WO 02/101668 and the reasons why it is different from the corresponding reference 2006/00566661.

With the above understanding its international publication date December 19, 2002 is qualified to be a 102 (a)/103 (a) reference however since it is found that there is no distinctions between the

international application WO 02/101668 and the corresponding US application publication 2006/0056661, citation is made from the corresponding US application publication 2006/0056661.

The next argument presented by the applicant's representative is referring to independent claim 43, in particular referring to the limitation recited as **"wherein a first wavelength is 678 nm and a second wavelength ranges from 808 nm to 835 nm, the first wavelength representing light to acquire at least one of the plurality of images and the second wavelength representing light to acquire at least one other of the plurality of images."**

Applicant's representative argued that the above limitation is not addressed by the reference on the record.

However a close review of the previous office action revealed that dependent claim 30 recites similar limitations and on page 12-13 of the previous office action this limitation is addressed.

In other words Einighammer the attached reference which is Published on Dec 19, 2002 on page 4-7 and on its equivalent English publication 2006/0056661 on **paragraph 0007, discloses the following which meets the above limitations.** *"In order to improve the measurement result, it is furthermore provided, within the scope of the invention, that several limited spectrum ranges are used for illuminating the irradiation point. It is advantageous, in this connection, if light from the spectrum ranges*

around **600 nm and around 800 nm** is used for illuminating the irradiation point, since a great absorption jump in the hemoglobin as well as an absorption drop in the skin pigment melanin can be detected **between these wavelengths**, and furthermore, the varying oxygen saturation of the skin does not have any influence on the measurement.” Furthermore on paragraph 0014-0015, **Einighammer** further discloses the following which meets the above limitation. “To determine the scatter function, it is advantageous if several light sources are arranged in the illumination ring, which emit light at different wavelengths. In this connection, it is advantageous if the number of light sources is correlated with a wavelength having the scatter and absorption capacity (scatter function) of the skin at this wavelength, so that light having a wavelength the scatter function of which leads to a greater attenuation of the intensity at the given distance, is irradiated in at the irradiation point, by way of the illumination ring having an averaged irradiation intensity, in order to thereby obtain a sufficient measurement signal, which is comparable with the measurement signals of other wavelengths, with regard to intensity.”[paragraph 0014] “Two illumination rings arranged concentric to one another are provided, which **emit light of different wavelengths.**” [Paragraph 0015])

Therefore with the above understanding the rejection is maintained. Applicant's representative is encouraged to schedule another interview to discuss how the claims could be amended to overcome the ground of rejection and possibly make the application allowable.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 21, 23-28 and 30-42** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Annoff Marius** (hereinafter referred as **Marius**) (European patent No. DE10123561) (Published on October 18, 2001) (Published on October 18, 2001; submitted with IDS) (See reference U, for the equivalent computer translated English version) in view of **Bolle et al** (hereinafter referred as **Bolle**) (U.S. Publication No. 2004/0042642) (filed on September 3, 2003) (Continuation of application No. 09/537,077 filed on March 28, 2000) further in view of **Einighammer et al** (hereinafter referred as **Einighammer**) (International Application WO

02/101668 published on December 19, 2002) which is found to be directly corresponds to the US Patent Publication No. 2006/0056661 A1)

Note: **USPTO translation office, has reviewed and confirmed that there is no distinction what so ever between Application 2006/00566661 and its corresponding international application, WO 02/101668. Therefore citation is made from the corresponding US Publication.)**

5. **As per independent claim 21 and dependent claim 23-26, 42** Marius

discloses a method for recognition of biometric data [See abstract, "biometric characteristics of fingertips"]: **comprising**

- **illuminating an object** [figure 1a, ref. Num "1"/finger] **using a light source** [Figure 1a, ref. Num "4" and figure 1d, ref. Num "4 & 8"];
- **Simultaneously acquiring a plurality of images of the object from at least two different imaging directions** [Figure 1a, ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives..", see also claim 4, "Furthermore on claim 4 the following has been disclosed "method for person identification according claim 1, characterized in that a system existing from **two or more cameras the finger crest simultaneous from**

various perspective takes up, whereby the cameras can exhibit the additional embodiment of the claims 2 and 3".]

using optical scanning [figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);

- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing ; calculating a three-dimensional model of the object from the numerical data of each of the at least two images** [“title, “Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images”];
- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance** [See title

and on page 2, paragraph 6, the following has been disclosed. "the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ..." And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes]

Marius does not explicitly teach the particular features that the biometric data includes at least one characteristic of one of fingers and face of a person

However, in the same field of endeavor, **Bolle on paragraph 0055, lines 5-17 discloses the following which meets the above feature.**

*"The user 410 offers a traditional biometric 420 for authentication or identification purposes. Such a biometrics **could be a fingerprint, iris or face.** However, rather than holding the biometrics still, as in the case of fingerprints or faces, or keeping the eyes open, as in case of iris recognition, the user performs some specific action 430,*

*a(t) with the biometrics. This action is performed over time 432, from time 0 (434) to some time T (436). Hence, the action a(t) is some one-dimensional function of time 430 and acts upon the traditional biometric 420. Note that this biometric is the actual biometric of user 410 and not a biometrics signal (i.e., in the case of fingerprints, **it is the three-dimensional finger with the print on it).**"*

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of biometric data including at least one characteristic face of a person as per teachings **Bolle** into the method as taught by **Marius**, for the purpose of providing a backward compatible biometrics methods such as faces for authentications is backward compatible with fingerprint databases. [See **Bolle** for instance paragraph 0018]

However, the combination of Marius and Bolle does not explicitly teach the particular features such as the illuminating of the object includes directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis.

However, in the same field of endeavor, **Einighammer on figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above features.**

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis and wherein an intensity of the light backdiffused from the object is measured at the at least two points and compared to a reference value as per teachings of **Einighammer** into the method taught by the combination of **Marius and Bolle**, for the purpose of indicating a method with which the security of biometric methods for checking access authorization, can be improved to prevent attempts for deception. [See Einighammer on paragraph 0003]

6. **As per dependent claim 27 the combination of Marius, Bolle and Einighammer discloses a method as applied to claims above. Furthermore Bolle discloses the method wherein the object is a face, wherein the plurality of images includes a front image and a lateral image, and wherein an ear is at least partially visible in the lateral image. (On paragraph 0055, lines 5-17, Bolle discloses the following which meets the above**

feature. "The user 410 offers a traditional biometric 420 for authentication or identification purposes. Such a biometrics could be a fingerprint, iris or face. However, rather than holding the biometrics still, as in the case of fingerprints or faces, or keeping the eyes open, as in case of iris recognition, the user performs some specific action 430, $a(t)$ with the biometrics. This action is performed over time 432, from time 0 (434) to some time T (436). Hence, the action $a(t)$ is some one-dimensional function of time 430 and acts upon the traditional biometric 420. Note that this biometric is the actual biometric of user 410 and not a biometrics signal (i.e., in the case of fingerprints, it is the three-dimensional finger with the print on it)."

7. **As per dependent claim 28 and 30 the combination of Marius, Bolle and Einighammer** discloses a method as applied to claims above. Furthermore Einighammer discloses the method *wherein* at least one of the plurality of images is acquired using light of a first wavelength and at least one other of the plurality of images is acquired using light of a second wavelength different from the first wavelength used and wherein the first wavelength is 678 nm and the second wavelength is about 808 nm to 835 nm, the first wavelength representing light to acquire at least one of the plurality images and the second wavelength representing light acquire

at least one other of the plurality of images. (paragraph 0007)

(for instance on paragraph 0007, the following has been disclosed. *"In order to improve the measurement result, it is furthermore provided, within the scope of the invention, that several limited spectrum ranges are used for illuminating the irradiation point. It is advantageous, in this connection, if light from the spectrum ranges around **600 nm and around 800 nm** is used for illuminating the irradiation point, since a great absorption jump in the hemoglobin as well as an absorption drop in the skin pigment melanin can be detected **between these wavelengths**, and furthermore, the varying oxygen saturation of the skin does not have any influence on the measurement."* Furthermore on paragraph 0014-0015, **Einighammer** further discloses the following which meets the above limitation. *"To determine the scatter function, it is advantageous if several light sources are arranged in the illumination ring, which emit light at different wavelengths. In this connection, it is advantageous if the number of light sources is correlated with a wavelength having the scatter and absorption capacity (scatter function) of the skin at this wavelength, so that light having a wavelength the scatter function of which leads to a greater attenuation of the intensity at the given distance, is irradiated in at the irradiation point, by way of the illumination ring having an averaged irradiation intensity, in order to thereby obtain a sufficient measurement signal, which is comparable with the measurement signals of other wavelengths, with regard to*

*intensity.”[paragraph 0014] “Two illumination rings arranged concentric to one another are provided, which **emit light of different wavelengths.**” [paragraph 0015])*

8. **As per dependent claim 31-32 the combination of Marius, Bolle and Einighammer discloses a method as applied to claims above. Furthermore Einighammer discloses a method** wherein the illuminating is performed punctually using additional light sources in at least one of a visible and infrared spectral range two at least two points on the object and wherein an intensity of the light back diffused from the object is measured at the at least two points and compared to a reference value. **(figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above feature)**
9. **As per claim 33 the combination of Marius, Bolle and Einighammer discloses a method as applied to claims above. Furthermore Marius discloses a method for recognition of** biometric data as applied to claims above. Furthermore Marius discloses the method wherein the plurality of other images are acquired by skewing the object stepwise around an axis running through the object and wherein at least two of the plurality of other images are saved in several discrete situations respectively and are joined together to at least one three-dimensional model

reference model. [*“title, “Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images”*]

10. **As per dependent claim 34 the combination of Marius, Bolle and Einighammer discloses a method as applied to claims above. Furthermore Marius discloses a method wherein a plurality of light source [figure 1d, ref. Num “4 & 8”] are switched in a pulse-coded manner and, synchronously, an analysis of the signal is performed using an image receiver array. (figure 1a-1d; 2a-2b and figure 3)**
11. **As per dependent claims 35-39 the combination of Marius, Bolle and Einighammer discloses an apparatus as applied to claims above. Furthermore Marius discloses an apparatus comprising: at least one illumination device configured to emit at least one of a visible and an infrared light [Figure 1c, ref. Num “4”]; and at least two light detectors configured to acquire independent images [Figure 1c, ref. Num “2” & “3”; see also figure 1d; figure 2a, 2b and figure 3].**
12. **As per claim dependent claim 40 the combination of Marius, Bolle and Einighammer discloses an apparatus as applied to claims above. Furthermore Marius discloses the apparatus wherein the plurality of light detectors are part of an electronic**

camera and wherein several images are acquired by the camera from different directions and are merged using beam-combining optical elements. [figure 1c-1d; figure 2a-2b; figure 3]

13. **As per claim 41 the combination of Marius, Bolle and Einighammer discloses an apparatus as applied to claims above. Furthermore Marius** discloses the apparatus wherein the plurality of light wherein for punctual illumination, the at least two light sources [Figure 1d, ref. Num “4” and “8”] are disposed as an independent module[Figure 1d].
14. **Independent claims 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Annoff Marius** (hereinafter refereed as **Marius**)(European Patent No. DE10123561 A1) (Published on October 18, 2001; submitted with IDS) (See reference U, for the equivalent computer translated English version) in view of Einighammer et al (hereinafter referred as **Einighammer**) (International Application WO 02/101668 published on December 19, 2002) which is found to be directly corresponds to the US Patent Publication No. 2006/0056661 A1)
- Note: **USPTO translation office has reviewed and confirmed that there is no distinction what so ever between Application 2006/00566661 and its corresponding international application, WO 02/101668. Therefore citation is made from the corresponding US Publication.)**

15. **As per independent claim 43** Marius, the primary reference on the record discloses a method for recognition of biometric data [See abstract, "biometric characteristics of fingertips"]: comprising

- **illuminating an object** [figure 1a ref. Num "1"/finger] **using a light source** [Figure 1a ref. Num "4" and figure 1d, ref. Num "4 & 8"];
- **Acquiring a plurality of images of the object from at least two different imaging directions** [Figure 1a ref. Num "2" and "3"; see abstract, "fingertip can be analyzed from different perspectives.." Furthermore on claim 4 the following has been disclosed "method for person identification according claim 1, characterized in that a system existing from **two or more cameras the finger crest simultaneous from various perspective takes up**, whereby the cameras can exhibit the additional embodiment of the claims 2 and 3".] **using optical scanning** [figure 1a, optical scanners use optics to gather finger images. The optics are part of the camera system that captures reflected light from light source, normally through prism. To get an optical fingerprint image, the device will have: platen: used for presenting the finger; Prism: used for reflecting the lighted image to the camera; light source: used to illuminate the fingerprint. This is normally a grid of light-emitting diodes (LEDs); And camera

used to capture the finger images. All these features are included in this reference see at least figures 1a and 1b);

- **Acquiring numerical data for each of at least two of the plurality of images using digital image processing** [*“title, “Person identification with 3-dimensional finger group analysis involves analyzing fingerprint, fingertip shape from different perspectives to prevent deception using planar images”*];
- **Comparing the three-dimensional model to a reference model, wherein the reference model is acquired from a plurality of other images; and recognizing the object as a correct object when the numerical data from the each of the at least two images simultaneously correspond with data from the reference model within a predetermined tolerance** [*See title and on page 2, paragraph 6, the following has been disclosed. “the present method can be used in all areas of life in which a person identification of emergencies is helpful or furthermore and can replace conventional method for the identification or verification of persons. And at end of this paragraph the following has been disclosed, the biometric method introduced here can be used for Entrance control systems to doors or buildings, computer access authorization or system to the authenticating ...” And all these access control systems mentioned in the above paragraphs, includes comparison with reference model with a predetermined*

tolerance to identify and recognize/authenticate and authorized the subject/object/person for a particular purposes]

Marius does not explicitly teach the particular features such as the illuminating of the object includes directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis.

However, in the same field of endeavor, **Einighammer on figure 1-3 and 7; paragraph 0004, 0008, 0011-0012 and abstract discloses the above features. Furthermore Einighammer discloses the following which meets the following limitation, “wherein a first wavelength is 678 nm and a second wavelength ranges from 808 nm to 835 nm, the first wavelength representing light to acquire at least one of the plurality of images and the second wavelength representing light to acquire at least one other of the plurality of images.”**

For instance on paragraph 0007, the following has been disclosed. “In order to improve the measurement result, it is furthermore provided, within the scope of the invention, that several limited spectrum ranges are used for illuminating the irradiation point. It is advantageous, in this connection, if light from the

spectrum ranges around **600 nm and around 800 nm** is used for illuminating the irradiation point, since a great absorption jump in the hemoglobin as well as an absorption drop in the skin pigment melanin can be detected **between these wavelengths**, and furthermore, the varying oxygen saturation of the skin does not have any influence on the measurement.” Furthermore on paragraph 0014-0015, **Einighammer** further discloses the following which meets the above limitation. “To determine the scatter function, it is advantageous if several light sources are arranged in the illumination ring, which emit light at different wavelengths. In this connection, it is advantageous if the number of light sources is correlated with a wavelength having the scatter and absorption capacity (scatter function) of the skin at this wavelength, so that light having a wavelength the scatter function of which leads to a greater attenuation of the intensity at the given distance, is irradiated in at the irradiation point, by way of the illumination ring having an averaged irradiation intensity, in order to thereby obtain a sufficient measurement signal, which is comparable with the measurement signals of other wavelengths, with regard to intensity.”[paragraph 0014] “Two illumination rings arranged concentric to one another are provided, which **emit light of different wavelengths**.” [paragraph 0015])

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to add the features of directing an illumination path coming laterally from the light source onto the object and wherein the acquiring of numerical data includes analyzing both a reflected portion and a transmitted portion using at least one of a spectroscopic analysis and a scattered-light-spectroscopic analysis as per teachings of **Einighammer** into the method taught by **Marius**, for the purpose of indicating a method with which the security of biometric methods for checking access authorization, can be improved to prevent attempts for deception. [See Einighammer on paragraph 0003]

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samson B Lemma whose telephone number is 571-272-3806. The examiner can normally be reached on Monday-Friday (8:00 am---4: 30 pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BARRON JR GILBERTO can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Samson B Lemma/

Examiner, Art Unit 2432

/Jung Kim/

Primary Examiner, AU 2432

